

# **Prevention of Significant Air Quality Deterioration Review**

## **Final Determination**

January 25, 2012

Facility Name: PyraMax Ceramics, LLC Kings Mill facility

City: Wrens

County: Jefferson

AIRS Number: 04-13-163-00035

Application Number: 20584

Date Application Received: July 26, 2011



State of Georgia  
Department of Natural Resources  
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## BACKGROUND

On July 26, 2011, PyraMax Ceramics, LLC – Kings Mill facility (hereafter PyraMax Ceramics) submitted an application for an air quality permit to construct and operate a ceramic proppant manufacturing facility. The facility is located on County Road 291 in Wrens, Jefferson County. The facility will have two parallel process/kiln lines. Each consists of material handling, milling, slurry preparing, spray drying/pelletizing, green pellet screening, calcining/sintering, finishing, and packaging and shipping operations. Supporting operations at the facility include boilers, emergency generators, R&D and QA/QC labs, fuel and chemical storage tanks. The ceramic proppants will be used in the oil and natural gas industry.

On December 15, 2011, the Division issued a Preliminary Determination stating that the green field manufacturing facility described in Application No. 20584 should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the modified equipment.

The Division requested that PyraMax Ceramics place a public notice in a newspaper of general circulation in the area of the existing facility notifying the public of the proposed construction and providing the opportunity for written public comment. Such public notice was placed in *The News and Farmer/The Jefferson Reporter* (legal organ for Jefferson County) on December 22, 2011. The public comment period expired on January 23, 2012.

Upon request from PyraMax Ceramics, a Public Hearing was held by the Division on January 17, 2012. No comments on the draft permit were received during the Public Hearing. During the Public Hearing, EPD extended the public comment period to January 23, 2012.

During the comment period, comments were received from PyraMax Ceramics and from the general public. There were no comments received from the U.S. EPA region IV.

A copy of the final permit is included in Appendix A.

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PYRAMAX CERAMICS' COMMENTS

Comments were received from Mr. Justin Fickas, Managing Consultant of Trinity Consultants on behalf of PyraMax Ceramics, by letter dated on January 19, 2012.

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**Comment 1:**

Condition 2.2.1: The Permittee shall implement measures, including fencing, sign postings, and routine patrols to restrict public access along the entire Source Boundary utilized in the ambient impact assessment/modeling. Signs shall be posted along the property boundary no further than 100 feet apart, and patrols shall be conducted at least once weekly on boundaries that have public access. The Permittee shall maintain a written plan outlining such measures, and shall be updated as required. The Division reserves the right to require enhancement of the plan.

[40 CFR 52.21]

The current plan calls for fencing around the entire property boundary, consistent with those property boundaries as utilized in the facility air dispersion modeling assessments. Therefore, this condition is unnecessary, and PyraMax requests removal of this permit condition. As an alternative, the permit condition could be modified to the following;

The Permittee shall implement measures, including fencing, sign postings, or routine patrols to restrict public access along the entire Source Boundary utilized in the ambient impact assessment/modeling. Signs shall be posted along the property boundary no further than 100 feet apart, and patrols shall be conducted at least once weekly on boundaries that have public access at which fencing is not provided. The Permittee shall maintain a written plan outlining such measures, and shall be updated as required. The Division reserves the right to require enhancement of the plan.

**EPD Response**

Requested changes have been made. Modified Condition 2.2.1 is reiterated Below:

“2.2.1 The Permittee shall implement measures, including fencing, sign postings, or routine patrols to restrict public access along the entire Source Boundary utilized in the ambient impact assessment/modeling. Signs shall be posted along the property boundary no further than 100 feet apart, and patrols shall be conducted at least once weekly on boundaries that have public access at which fencing is not provided. The Permittee shall maintain a written plan outlining such measures, and shall be updated as required. The Division reserves the right to require enhancement of the plan.  
[40 CFR 52.21]”

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**Comment 2:**

General typographical errors within Condition 3.1 that should be corrected include the following;

- a. There is no Permit Section 3.2. However, equipment within the pelletizer grouping (i.e. PEL1) reference permit conditions in Section 3.2.

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- b. Section 3.3.8, for NSPS Subpart UUU, is referenced for various equipment within Table 3.1, for equipment for which that rule is not applicable (i.e. ADS1).
  - c. The boilers (B1, B2) reference Condition 3.3.21, which refers to the emergency engines. This condition reference should be stricken.

**EPD Response**

- a. Subsection 3.2 has been added back to the permit. The misplaced condition references in Table 3.1 have been removed.
  - b. The misplaced condition references to Condition 3.3.8 have been removed.
  - c. The reference to Condition 3.3.21 has been corrected to Condition 3.3.22.
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**Comment 3:**

Permit Condition 5.2.10

Permit Condition 5.2.10(g), and 5.2.10(h) require the same information be recorded for the emergency diesel generators. It is recommended that Condition 5.2.10(h) be removed.

**EPD Response**

Condition 5.2.10(h) has been removed as requested.

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**Comment 4:**

Permit Condition 5.2.2: The Permittee shall install a device to continuously monitor the temperature at the inlets of baghouses that receive gases at a temperature higher than ambient air, and record the time and date of each incident when the temperature exceeds the fabric filter bag design temperature. In lieu of monitoring temperature at the baghouse inlet, the Permittee may monitor a surrogate temperature (e.g., clay temperature or dryer/pelletizer outlet temperature). For each baghouse monitored by a surrogate temperature, the Permittee shall determine the equivalent fabric filter bag design temperature and record each incident when the surrogate temperature exceeds the equivalent fabric filter bag design temperature. The Permittee shall record the fabric filter bag design temperature or the equivalent filter bag design temperature for each fabric baghouse listed. Such records and any supporting calculations shall be made available for inspection.

[391-3-1-.02(6)(b)1 and 40 CFR 52.21- PSD/BACT]

It is requested, for clarification, that the text of the permit condition provided above be modified as follows, as the indicated baghouse equipment references are those baghouses expected to operate at temperatures above that of ambient air.

The Permittee shall install a device to continuously monitor the temperature at the inlets of baghouses that receive gases at a temperature higher than ambient air (BHP1, BHP2, BHK1, BHK2)...

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**EPD Response**

Condition 5.2.2 has been revised to including the ID numbers of the baghouses (BHP1, BHP2, BHK1 and BHK2) receiving gas at a temperature higher than ambient air.

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**Comment 5:**

Permit Condition 3.3.13: The Permittee shall operate each calciner/kiln such that the temperature at the inlet of the “catalytic baghouse” serving the calciner/kiln remains at or greater than that established during the most recent Division-approved performance test but below 750°F.

[40 CFR 52.21 - PSD/BACT]

It is requested that the PSD/BACT citation be removed, and a general Georgia citation be provided, as this operating limit condition does not directly apply to BACT.

**EPD Response**

The rule citation for Condition 3.3.13 has been changed from “40 CFR 52.21 - PSD/BACT” to “391-3-1-.02(2)a”, as requested.

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**Comment 6:**

Permit Condition 3.3.12

- a. The compliance method reference for each calciner/kiln for VOC emissions (emission limit 0.54 lb/hr) should be modified to Method 25, 3 hours. The current method listed for VOC emissions is a mass balance approach, which is not viable for the kilns.
- b. The condensable Particulate Matter (PM) reference for Method 202 should be removed from the operation “Each of the emission units with baghouse control excluding spray dryers/pelletizers and calciners/kilns” and added to “Each spray dryer/pelletizer”.

**EPD Response**

- a. Condition 3.3.12 has been revised as requested. Reference to the VOC testing method has been added to the general testing method list in Condition 4.1.1.
  - b. The condition has been revised as suggested.
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**Comment 7:**

It is requested that the term “sodium bicarbonate” be replaced with the term “sorbent” in the following permit conditions.

- a. Condition 3.1 (i.e. Sodium Bicarbonate Silo to Sorbent Silo).
- b. Condition 3.3.2(d)

- c. Condition 3.3.15
- d. Condition 4.2.11(b)
- e. Condition 4.2.12(b)
- f. Condition 5.2.10(c)
- g. Condition 6.1.7(c)(vi)
- h. Condition 6.2.16

### EPD Response

Different sorbents have different chemical affinity with SO<sub>2</sub>, HCl and HF. Properly utilized, a sorbent with strong chemical affinity with SO<sub>2</sub> such as sodium bicarbonate can usually achieve high SO<sub>2</sub>, HCl and HF control efficiencies. Therefore, to properly demonstrate compliance with the BACT emission limits for SO<sub>2</sub>, HCl and HF after starting to use to a different sorbent the first time, the Permittee should determine the SO<sub>2</sub>, HCl and HF control efficiencies for the sorbent. To ensure compliance with the BACT standards and at the same time to address the comments, the following changes have been made:

- a. Descriptions of “Sodium Bicarbonate Silo” in Table 3.1 have been changed to “Sorbent Silo”.
- b. Reference to “sodium bicarbonate” in Condition 3.3.2d. has been changed to “sorbent”.
- c. All the references to “sodium bicarbonate” in Condition 3.3.15 have been changed to “sorbent”.
- d. The reference to “sodium bicarbonate” in Condition 4.2.11b. has been changed to “sorbent”.
- e. The reference to “sodium bicarbonate” in Condition 4.2.12b. has been changed to “sorbent”.
- f. The reference to “sodium bicarbonate” in Condition 5.2.10c. has been changed to “sorbent”.
- g. The reference to “sodium bicarbonate” in Condition 6.1.7c.vi. has been changed to “sorbent”. And “such as” has been inserted in front of “W<sub>NaHCO<sub>3</sub></sub>”.
- h. Condition 6.2.16 has been modified based on the request and reiterated below:

- “6.2.16 The Permittee shall determine the current sorbent injection rate required to maintain the molar ratio between the sorbent being used and SO<sub>2</sub> at the level established during the most recent Division-approved performance test(s) using the equations specified below:

$$W_{sorbent\ i} = (C_i)(X_i)(E_{SO_2,i})$$

Where:

W<sub>i</sub> = Current inject rate (lbs./hr) for i<sup>th</sup> sorbent used for the calciner/kiln involved;

C<sub>i</sub> = Conversion constant from molar ratio to mass ratio;

X<sub>i</sub> = The molar ratio between the i<sup>th</sup> sorbent and SO<sub>2</sub> established During the most recent Division-approved performance test for the use of the i<sup>th</sup> sorbent;

E<sub>SO<sub>2</sub>, i</sub> = Daily average pre-control SO<sub>2</sub> emission rate (lbs./hr) from the calciner/kiln as determined in Condition 6.2.15”.

In addition, Condition 4.2.5 has been revised to require the company to conduct a performance test on the “catalytic baghouses” after switching to a different sorbent whose acid gas control efficiencies have not been determined:

- “4.2.5 Within 180 days after the initial startup of this facility, the Permittee shall conduct initial performance tests as specified in the Table 4.2.5-1 to demonstrate initial compliance with the BACT, MACT and SIP emissions limits using applicable test methods and/or procedures specified in Condition 4.1.1 through 4.1.5. The tests shall be conducted under the conditions that exist when the affected source(s) is operating at the representative performance conditions. In lieu of the testing required by this condition, the appropriate testing results from Conditions 4.2.1 and 4.2.2, can be used to demonstrate initial compliance with the PM and visible emission limits for the same affected sources under the pertinent PSD/BACT and State rules in Sections 3.3 and 3.4 of this permit provided that the testing methodology meet the requirement of this condition. [391-3-1-.02(3) and 3-1-3-1-.03(2)(c)]

**Table 4.2.5-1: Initial BACT & Case-By-Case MACT Performance Test for Process/Kiln Lines**

| Emission Unit  | Emission Unit ID     | Emissions & Parameters <sup>[1]</sup>  |
|--|----------------------|--|
| Calciner/Kiln No. 1  | KLN1                 | Visible, CO, NO <sub>x</sub> , particulate matter as specified, SO <sub>2</sub> , HCl, HF and Reduction/control efficiency of NO <sub>x</sub> , SO <sub>2</sub> , HCl & HF |
| Calciner/Kiln No. 2  | KLN2                 |  |
| Spray Dryer/Pelletizer No. 1   | PEL1                 | Visible, CO, NO <sub>x</sub> and particulate matter as specified   |
| Spray Dryer/Pelletizer No. 2   | PEL2                 |  |
| Other stack emission sources excluding spray dryers/pelletizers, calciners/kilns and silos with dedicated bin vents. | (refer to Table 3.1) | Visible & particulate matter as specified  |
| Silos with dedicated bin vents   | (refer to Table 3.1) | Visible  |

[1] CPM: condensable particulate matter; HCl and HF emissions should be determined in lbs/ton of kiln feed for use in Condition 6.2.17.

When starting to use a different sorbent to control SO<sub>2</sub>, HCl and HF emissions from calciner(s)/kiln(s) via the “catalytic baghouses” the first time, the Permittee shall conduct performance tests to determine the SO<sub>2</sub>, HCl, HF emission rates and control efficiencies of SO<sub>2</sub>, HCl and HF for the sorbent within the time specified by the Division. The Permittee shall notify the Division in writing of the change 60 days in advance. [391-3-1-.02(3) and 3-1-3-1-.03(2)(c)]”

#### Comment 8:

Conditions 6.2.14 and 6.2.15 require daily sampling and analysis of the clay sulfur content of each calciner/kiln feed and each kiln product stream, and use of that data to compute a daily averaged hourly post control SO<sub>2</sub> emissions rate for each calciner/kiln. PyraMax requests that these conditions be modified to require weekly sampling, analysis, and computation of emissions. Also, it is requested that clarification be provided, if necessary, regarding the percent by weight sulfur content of materials as specified in Condition 6.2.15 (i.e. dry weight basis).

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**EPD Response**

The 24-hour/daily average period is in consistent with one of the average time periods used in the ambient air quality impact analysis/modeling conducted for the SO<sub>2</sub> emissions. The requested weekly sampling, analysis, and computation of the SO<sub>2</sub> emissions is not adequate for the determination of the 24-hour average SO<sub>2</sub> emission rate. No change has been made to the condition. However, EPD would consider alternatives to this monitoring scheme in the future if justified and practical; a permit amendment would be necessary for such change.

Condition 6.2.15 has been revised to allow the calculation of SO<sub>2</sub> emissions to be based on dry mass/weight of input/raw materials and final products. Please refer to **EPD CHANGES** section for details.

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**Comment 9:**

Condition 6.2.16 involves determination of the current sodium bicarbonate and ammonia injection rates for the kiln emissions control systems. This condition is tied into excursions, as defined in Condition 6.1.7(c). For example, excursions are defined as “each instance that the recorded sodium bicarbonate injection rate (1-hour block average) dropped more than 5% below the current injection rate as determined per Condition 6.2.16.” The interaction of these permit conditions would mean that the value which would determine excursions would be changing constantly based on the frequency of sampling of the clay sulfur content, as well as the frequency of monitoring of NO<sub>x</sub> emissions. This would make continuing compliance with excursion conditions difficult.

In lieu of Permit Condition 6.2.16, PyraMax would propose establishment of the appropriate sodium bicarbonate and ammonia injection rates during initial and periodic compliance testing of the facility kilns, to define those values for which an excursion would be established. Also, if this request is granted by EPD PyraMax would also request removal of monitoring the NO<sub>x</sub> emissions “before” each catalytic baghouse as described in Condition 5.2.8, as that requirement would now no longer be necessary for gathering data for Condition 6.2.16.

**EPD Response**

Given that NO<sub>x</sub> from the calciners is monitored periodically in accordance with Condition 5.2.8, and uncontrolled NO<sub>x</sub> is not as likely to vary as clay sulfur content, EPD has agreed to remove the adjustable NH<sub>3</sub> injection rate requirement. The minimum NH<sub>3</sub> injection rate will established during the most recent Performance Test, and excursions will include NO<sub>x</sub> monitoring results above the limits, and 3-hour block NH<sub>3</sub> inject rate less than 95% of the rate during the most recent Performance Test. As described in EPD response to comment 8, sulfur emissions monitoring from the calciners will remain as-is, but alternative methods may be proposed at a later time.

Condition 6.2.16 has been revised to remove the monitoring requirement for the NO<sub>x</sub> emissions from the calciners/kilns. Revised Condition 6.2.16 is reiterated below:

“6.2.16 The Permittee shall determine the current sorbent injection rate required to maintain the molar ratio between the sorbent being used and SO<sub>2</sub> at the level established during the most recent Division-approved performance test(s) using the equations specified below:



$$W_{\text{sorbent } i} = (C_i)(X_i)(E_{\text{SO}_2, i})$$

Where:

- $W_i$  = Current inject rate (lbs./hr) for  $i^{\text{th}}$  sorbent used for the calciner/kiln involved;
- $C_i$  = Conversion constant from molar ratio to mass ratio;  
 $X_i$  = The molar ratio between the  $i^{\text{th}}$  sorbent and  $\text{SO}_2$  established during the most recent Division-approved performance test for the use of the  $i^{\text{th}}$  sorbent;
- $E_{\text{SO}_2, i}$  = Daily average pre-control  $\text{SO}_2$  emission rate (lbs./hr) from the calciner/kiln as determined in Condition 6.2.15.”

As the result of the change made to Conditions 6.2.16, Conditions 3.3.14 and 3.3.15 have been modified, and reiterated below:

- “3.3.14 The Permittee shall operate each calciner/kiln such that the  $\text{NH}_3$  injection rate is maintained at the level established during the most recent Division-approved performance test.  
 [40 CFR 52.21 - PSD/BACT]”
- “3.3.15 The Permittee shall operate each calciner/kiln such that the current sorbent injection rate allows the molar ratio between the sorbent and  $\text{SO}_2$  in the calciner/kiln exhaust gas at the inlet of the associated “catalytic baghouse” to remain at the level established during the most recent Division-approved performance test. The current sorbent injection rate shall be determined in accordance with Condition 6.2.16.  
 [40 CFR 52.21 - PSD/BACT]”

The  $\text{SO}_2$  emissions generated by calciners/kilns vary proportionally with clay sulfur contents which could fluctuate significantly among mining locations. Consequently, the sorbent usage rate required to maintain the  $\text{SO}_2$  control efficiencies will vary proportionally to the reaction stoichiometry (molar or mass ratio between the reactants) involved. The proposed periodic monitoring requirements for  $\text{SO}_2$  emissions/clay sulfur content will provide timely pre-controlled  $\text{SO}_2$  emission data required for the determination of the proper sorbent usage rate required to maintain the sorbent/ $\text{SO}_2$  molar or mass ration at the level established during the performance tests, thus allowing the maintaining the BACT  $\text{SO}_2$  control efficiency. Without such monitoring requirements, under- or over-dosage of the sorbent could occur. Under-dosage could reduce control efficiencies due to the escaping of un-reacted  $\text{SO}_2$ ; while over-dosage could cause excessive PM and visible emissions (Injected dry powdery sorbents contribute to PM emissions). Hence, EPD has determined that the proposed  $\text{SO}_2$ /clay sulfur monitoring requirements are adequate and necessary.

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#### Comment 10:

Use of the Term Spray Dryers/Pelletizers

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PyraMax would request that the terminology within the draft permit regarding spray dryers/pelletizers be modified to pelletizers in the final permit.

**EPD Response**

These spray dryers/pelletizers are subject to 40 CFR Part 60, Subpart UUU: “*Standards of Performance for Calciners and Dryers in Mineral Industries*”. This NSPS standard only uses “dryer” to describe and define the same process equipment. To avoid unnecessary confusion, EPD has determined not to make changes as requested.

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**GENERAL PUBLIC COMMENTS**

Comments were received from the general public, and summarized below with EPD's responses.

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**Comment 1:**

Comments were received from Ms. Tonya Bonitatibus, Executive Director of Savannah Riverkeeper, by email on January 23, 2012. In the comments Ms. Bonitatibus asked Air Quality control measures in Appendix A of the permit. She also requested an extension to the 30-day Public Comment Period.

**EPD Response:**

EPD has determined that an extension to the 30-day public comment period is not justified. Between the public advisory in Fall 2011, and the public comment period following the draft permit, ample time for public comments was provided. In addition, a press release regarding the public comment period and hearing was provided, and the local newspaper ran at least two articles highlighting the project. Regarding the comment, Attachment A of the permit is a list of possible acronyms that may be used in the permit. Appendix A of the Preliminary Determination is the Notice of MACT Approval that explains emissions limitations for Hazardous Air Pollutants under 112(g) of the Clean Air Act Amendments of 1990.

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**Comment 2:**

Mr. Thomas Burke, a resident of City of Wrens, submitted comments by letter on January 18, 2012. In the letter he expressed his concerns over the "fallout of many gases" emitting from PyraMax Ceramics' proposed manufacturing facility, and impact of facility's water usage on local water supply. Mr. Burke asked the Division not to issue the Air Quality Permit to the company.

**EPD Response:** See response to Comments 2 through 5 below.

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**Comment 3:**

Mr. Ralph Burke, a resident of City of Wrens, submitted comments by letter on January 18, 2012. In the letter Mr. Ralph Burke expressed the concerns about the general amount of emissions from the facility, the water usage, and the oil industry. Because of the concerns, he also opposed EPD to issue the Air Quality Permit to the company.

**EPD Response:** See response to Comments 2 through 5 below.

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**Comment 4:**

Mr. Ande Burke, a resident of City of Wrens, wrote comments in a letter dated January 20, 2012. In the letter Mr. Ande Burke expressed his concerns about issues such as the impacts of PM emissions from PyraMax Ceramics' facility on the quality of life in the area around the plant, the possible contamination of nearby water bodies by hazardous liquids and runoff from the facility, and the impact of the water usage by the facility on the water table. Because of the concerns, he also opposed EPD to issue the Air Quality Permit to the company.

**EPD Response:** See response to Comments 2 through 5 below

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**Comment 5:**

Ms. Joyce Dye Whatley, a resident of City of Wrens, wrote comments in a letter dated January 21, 2012. In the letter Ms. Whatley indicated that she is “against any project that would even slightly pollute the air”.

**EPD Response to Comments 2 through 5:**

The above comments were received from the residents of city of Wrens requesting EPD to not grant the permit to PyraMax Ceramics for construction and operation of this facility. This facility has reasonably demonstrated that it will be in compliance with requirements of all applicable air quality regulations and ambient air quality and emission standards as outlined in the preliminary determination, and EPD is not aware of a reason to deny the permit. Comments regarding water issues are beyond the scope of our Air Quality Permitting process.

**Comment 6:**

Mr. David B. Lauderdale Sr., a resident of Hilton Head island, South Carolina, wrote comments in a letter dated January 23, 2012 expressing the following concerns about PyraMax Ceramics’ facility:

1. **Liability.** Your permitting should document the baseline of air quality that exists prior to construction so that liability for any future damage can be established.
2. **Bonding.** Your permitting should force the applicant to post bond and document tort liability insurance coverage so financial reparations could be made for any damage to personal, animal, wildlife or plant health; quality of life; and property values of those subject to pollutants from this plant.
3. **True Emissions.** You propose that emissions into the air will total 168,989 tons of pollutants per year. You must also document actual emissions if and the plant become operational. You must show the true emissions, not emissions based on forecasts or computer modeling.
4. **Limits.** Have you proposed the limits on each type of pollutant the plant will emit? Does your permit limit each pollutant to a maximum annual tonnage?
5. **Enforcement.** You must check to see that the applicant abides by the terms, expectations and promises in the permit. You must check to see the applicant put into place the air pollution control technology that you expect or mandate in your permits.
6. **Ongoing Enforcement.** You must check to see that the applicant abides by the terms, expectations and promises in the permit. You must check to see that the applicant puts into place the air pollution control technology that you expect or mandate in your permits.
7. **Ongoing enforcement.** You must constant check long beyond the check at startup. Monitors should be put in place with emission data posed monthly online. Tell the public what the permit allows for each of the pollutants this plant will put into the air; show the public that the permit is being monitored on a regular, ongoing basis during the full lifetime of the plant; and show the public what those actual emission are in an ongoing manner.
8. **Ongoing inspections.** The air pollution control technology you cite, including catalytic baghouses,

must be inspected on a regular basis throughout the lifetime of the proposed plant to see that it is maintained to do what it is supposed to do, and that its indeed controlling the pollution to the degree you expected. Results of these inspections should be made public.

9. **Cumulative effect.** What is the effect of this rate of pollution, year after year? What is the effect of 168,989 tons of pollutants on those who breathe it for 5 years, 10 years, 20 years? What is the cumulative effect of this amount of pollution permitted today when added future permits for more pollutants from other sources?
10. **Show your teeth.** What resources will the state of Georgia take should this plant fail to be in compliance with its permits? What are the penalties for violation of the terms and limitations of the permits? What is the trigger to shut down the plant should its air emissions be a danger to the public, or if the emissions exceed your expectations?

The Public counts on the professionals at the Georgia Environmental Protection Division to serve as an unbiased, science-based, third-part collector of emissions data to prove that what you have permitted is what we get. We count on you to be advocate for people, plant life and animal life. The burden falls on you to prove that what you think is safe to day is what the proposed plant actually produces for as long as it should exist.

#### **EPD Response:**

Liability, True Emissions, Limits, Cumulative effect- Most of these concerns have been addressed either by the pertinent conditions in the permit which will regulate the quantity, control, testing monitoring, recordkeeping, compliance demonstration and reporting of the air pollutants of concern, or evaluated by the ambient air quality impact assessments conducted for the air pollutants. The Air Quality permit review performed for PyraMax does consider “baseline air quality” as part of our ambient impact evaluation – if modeling were to predict that the impacts above that baseline were unacceptable in accordance with federal air standards, no permit would be issued. The permit will require that emissions testing occur on a periodic basis to determine actual emissions. The permit contains limits that can be equated to a “tons per year” basis. The modeling performed also included cumulative effects from other existing sources; if a new plant proposes to move into the area, PyraMax’s emissions must be considered in that air quality permit review in accordance with state and federal regulations.

Bonding- The state and federal air quality regulations do not include a “bond”.

Ongoing Enforcement, inspections, and Show you teeth – The permit contains testing, monitoring, record keeping, and reporting requirements to ensure compliance. In addition, unannounced inspections are made by EPD enforcement officers. Penalties for noncompliance vary depending on the severity of the violation, and are determined by the compliance program of the Air Branch.

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#### **Comment 7:**

Mr. William A. Dye, Jr., a resident of City of Wrens, wrote comments in a letter dated January 23, 2012, and opposed the “construction of the PyraMax project for several reasons including health, property values, quality of life, truck traffic, ground water, surface water, and air quality”.

#### **EPD Response:**

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This facility has reasonably demonstrated that it will be in compliance with requirements of all applicable air quality regulations and ambient air quality and emission standards as outlined in the preliminary determination, and EPD is not aware of a reason to deny the permit.

### EPD CHANGES

The following changes and corrections have been made to the permit by EPD:

- Equation 6.2.15-1 in Condition 6.2.15 has been corrected to account for the weight/mass reduction of calciner/kiln feed because calciner/kiln feed loses bounding water during calcination.

“6.2.15 The Permittee shall use the equations below to determine the hourly SO<sub>2</sub> emissions from each calciner/kiln:

$$E_{SO_2,i} = \frac{(2)[(M_{KF,i})(C_{SF,i}) - (M_{KP,i})(C_{KP,i})](2000)}{(100)(T_i)} \quad \text{Equation 6.2.15-1}$$

$$W_{SO_2,i} = (E_{SO_2,i})(K_{C,i}) \quad \text{Equation 6.2.15-2}$$

where:

$E_{SO_2,i}$  = Daily averaged pre-control SO<sub>2</sub> emission rate from the i<sup>th</sup> calciner/kiln, lbs/hr;

2 = Mass conversion constant from sulfur to sulfur dioxide;

$M_{KF,i}$  = Quantity of the kiln kaolin slurry or calciner/kiln feed processed by the i<sup>th</sup> calciner/kiln during the calendar month, ton/month on dry basis;

$C_{SF,i}$  = Sulfur content of the kaolin slurry or calciner/kiln feed processed by the i<sup>th</sup> calciner/kiln during the calendar month, percent by weight on dry basis;

$M_{KP,i}$  = Quantity of the kiln product produced by the i<sup>th</sup> calciner/kiln during the calendar month, ton/month;

$C_{KP,i}$  = Sulfur content of the kiln product produced by the i<sup>th</sup> calciner/kiln during the calendar month, percent by weight;

2000 = Conversion constant from ton to pound;

100 = Conversion constant from mass percentage to mass ratio;

$T_i$  = Total operating time of the i<sup>th</sup> calciner/kiln during the calendar day, hour.

$W_{SO_2,i}$  = Daily averaged post-control SO<sub>2</sub> emission rate from the i<sup>th</sup> calciner/kiln, lbs/hr;

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$K_{c,i}$  = SO<sub>2</sub> control efficiency of the “catalytic baghouse” for the  $i^{\text{th}}$  calciner/kiln as determined by the most recent Division-approved performance test, weight percent.

The Permittee shall notify the Division in writing if any of daily averaged hourly post-control SO<sub>2</sub> emissions exceeds 11.64 pounds for any calendar day. This notification shall be submitted within 15 working days of the calculation and shall include a plan(s) of how the Permittee intends to attain future compliance with the SO<sub>2</sub> emission limit as specified in Condition 3.3.12. [40 CFR 52.21-PSD/BACT and 391-3-1-.02(6)(b)1]”

- Condition 3.3.17 limiting the annual operating time for emergency diesel generators has renumbered as Condition 3.2.1. References to the same condition also have been updated.
- The average time for the BACT limit for VOC emissions from spray dryers/pelletizers has revised from daily average to monthly average. Conditions 3.3.12 and 6.2.6 have been modified accordingly to accommodate the change in average time.
- The NO<sub>x</sub> measurement reporting requirement in 6.1.7d has been moved into Condition 5.2.8.
- Condition 4.2.12 c requiring NH<sub>3</sub>/NO<sub>x</sub> molar ratio has been deleted
- Condition 6.1.7 has been amended to include excursions for the NO<sub>x</sub> measurements in Condition 5.2.8, and changing the injection rate reporting to 3-hour block



## **APPENDIX A**

### **AIR QUALITY PERMIT**

**No. 3295-163-0035-P-01-0**

## **APPENDIX B**

### **WRITTEN COMMENTS RECEIVED DURING COMMENT PERIOD**